

Claims

1. Device for use as an interface between an upstream circuit and a downstream circuit in which the upstream circuit comprises an output and means for applying a direct bias voltage to the output and the downstream circuit comprises an input requiring a direct bias voltage greater than that applied to the output of the upstream circuit, the downstream circuit consuming a relatively large bias current which is a function of power delivered by the downstream circuit, the device comprising a voltage-offset diode realised in microwave monolithic integrated technology for mounting between the output of the upstream circuit and the input of the downstream circuit, the characteristic of the voltage-offset diode being selected such that the bias voltage of the output of the upstream circuit is offset by an offset corresponding more or less to the difference between the bias voltages of the output of the upstream circuit and the input of the downstream circuit, and the bias current of the downstream circuit is relatively high in relation to the threshold current of the offset diode.
2. Device according to claim 1, characterised in that the offset diode comprises a number of transistors mounted in parallel between the output of the upstream circuit and the input of the downstream circuit.
3. Device according to claim 2, characterised in that each transistor of the offset diode comprises a drain and a source connected to each other, the gate finger of each transistor forming a contact with diode effect.
4. Device according to one of claims 1 to 3, characterised in that the downstream circuit comprises a laser diode capable of emitting very broad band microwave signals.
5. Device according to claim 4, characterised in that the upstream circuit consists of a control circuit for the laser diode, the impedance of which is 50 ohms.
6. Device according to claim 4, characterised in that the downstream circuit has a low impedance, in the order of a few ohms.

7. Device according to claim 4, characterised in that the downstream circuit further includes a distributed amplifier as low-impedance adapter.

8. Device according to claim 7, characterised in that the distributed amplifier consists of a number of amplifier cells mounted between an input line and an output line, one of the ends of the input line forming the input of the distributed amplifier and being connected to the control circuit of the laser diode, one of the ends of the output line forming the output of the distributed amplifier, and the means of bias of the upstream circuit applying a bias voltage to the output line.

9. Device according to claim 1, characterised in that the bias current of the downstream circuit is in the order of a few dozen mA.

10. Device according to claim 3 or claim 9, characterised in that the individual development of each gate finger is in the order of a few micrometres and in that the total development of the offset diode is in the order of a few dozen micrometres.

11. Device according to one of the preceding claims, characterised in that it also includes a bias filter circuit of the output line, comprising a device with transistors acting as saturable load.

12. Electric apparatus comprising an upstream circuit having an output and means for applying a direct bias voltage to the output, a downstream circuit having an input and means for applying a direct bias voltage to the input, the direct biasing voltage applied to the input of the downstream circuit being greater than that applied to the output of the upstream circuit, and a device as claimed in claim 1 mounted between the output of the upstream circuit and the input of the downstream circuit.